

**To the Mayor and Members of the City Council****February 9, 2016**

Page 1 of 2

**SUBJECT: WEST 7<sup>TH</sup> STREET BRIDGE LIGHTING**

This Informal Report provides a summary on the condition of street and arch lighting on the West 7<sup>th</sup> Street Bridge and actions to improve the reliability of operations.

The West 7<sup>th</sup> Street Bridge over the Trinity River on the west side of downtown was constructed in partnership with the Texas Department of Transportation (TxDOT) and opened to traffic in January 2014. The project was recently closed by TxDOT and final numbers show that the project was delivered under budget resulting in significant savings. The City will be reimbursed approximately \$1.8 million by TxDOT for its portion of the savings.

The bridge structure has two primary lighting systems providing street lighting for the travel lanes from median mounted light poles and fixtures and lighting fixtures in the structural beam members to illuminate the arches and pedestrian paths on the outside of the bridge.

Since the opening of the bridge, staff has been engaged with four primary elements that have impacted the reliability of the lighting systems. They include the following items:

1. Arch Lighting – the power for these lights is provided via conduit that runs through the concrete median on the edge of the roadway on each side of the bridge. The arch lights are linked to a junction box that resides in a “U” shaped open area also intended to control water runoff. Under normal moisture conditions this junction box remains dry but with heavy rainfall – like has occurred several times this year – the “U” shaped area fills with water, allowing water into the junction box, which in turn channels water through the conduits to the arch lighting, pedestrian lighting and under bridge lighting. The water then shorts out some or all of the system. The tight working conditions in this area make the solutions to repair costly. Two options have been identified to correct the situation: 1) remove the junction box and conduit from the water channel (run a new conduit system on the top of the concrete median with top mounted junction boxes) and 2) replace the current arch lighting fixtures and cable with marine grade components and utilize energy saving LED fixtures. Option one works, but would impact the aesthetics of the bridge by exposing the junction boxes and conduit system. The second option, while more costly will upgrade the lights to LED fixtures that will have the ability to change colors to allow for them to be programmed to highlight seasonal events. The estimated cost for option two is \$150,000.
2. Street Lights in Median – The street light poles are mounted on top of the median barrier in the middle of the bridge and power to each of the poles comes off the main power line via a junction box at the end of the bridge. As outlined above, issues with water entering the conduit cause these median lights to short out as well. While the wiring for the median lighting is sound, staff recommends that the service box also be refitted with marine grade wiring to correct the issue. Cost for this improvement is approximately \$50,000.

**To the Mayor and Members of the City Council****February 9, 2016**

Page 2 of 2

**SUBJECT: WEST 7<sup>TH</sup> STREET BRIDGE LIGHTING**

3. Power Source for Bridge Lighting – one of the sources of power for the lighting system is provided from the northwest portion of the bridge. The ongoing Left Bank development resulted in the power tie-in being relocated further west and away from the bridge lights. This additional distance created enough drop in voltage (due to the length) that when the lights came on, the variation in the normal voltage level at the source trips the breaker in the system. This situation has since been corrected.
4. Pedestrian Lighting Along Bridge Sidewalks – this lighting is located on the outer side of the arch structure, next to the sidewalk area and was initially provided by glass covered fixtures that were often vandalized and then open to water damage and electrical failure. This condition has been corrected with replacement fixtures that are not as easily damaged.

Staff is compiling final cost estimates for improvements and will utilize existing on-call maintenance contracts for installation. Funding for these improvements will be provided from recent savings on the total project that were returned to the City from TxDOT. It is anticipated that these improvements will be accomplished over the next several months.

Please contact Alonzo Linan, TPW Assistant Director at 817-392-7861 with any questions regarding this work effort.

**David Cooke**  
**City Manager**